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# Combat Crew

Strategic Air Command

OCTOBER 1986

★★★★

A TRIBUTE TO GEN CURTIS E. LEMAY

★ DOCUMENTS
T 8 1986
DEPOSITORY ★

# The PEACEKEEPER Challenge

Last year at this time, I spoke about maintaining SAC's newest aircraft system — the B-1B. This year, we are bringing another new SAC weapon system on line — the PEACEKEEPER Intercontinental Ballistic Missile (ICBM). With a planned force of 50 to be deployed at F.E. Warren AFB in existing MINUTEMAN silos, SAC will have the first 10 PEACEKEEPERS on alert by the end of December 1986. Maintaining this force will pose many of the same challenges as the B-1B.

The PEACEKEEPER is one of the systems recommended by the President's Commission on Strategic Forces, commonly known as the Scowcroft Commission. Larger than the MINUTEMAN, the PEACEKEEPER will deliver up to ten warheads at increased range and greatly improved accuracy. Unlike previous silo-based systems, this missile is stored in the silo in a canister from which it is ejected prior to first stage ignition. This procedure is similar to the launch of the Navy's SLBMs.

Several MINUTEMAN sites have already been depostured and modifications are well underway on the silos to enable them to accept the new canisterized missile. With few exceptions SAC personnel will be performing the same types of maintenance tasks we have always done on ICBMs. This includes missile guidance set removal and replacement, reentry vehicle and reentry system build-up, and silo support equipment maintenance necessary to keep the missile launch-ready at all times. We have, however, incorporated a major maintainability enhancement by designing the guidance set to be installed and removed without opening the 100 ton launcher closure door or removing the reentry system as is the case in MINUTEMAN. New support equipment and facilities have been provided to support these tasks.

While many PEACEKEEPER tasks mirror MINUTEMAN, several tasks are significantly different and have fostered a new maintenance concept. In MINUTEMAN, SAC removes and replaces the three solid booster rockets in one piece. However, because of their size, the PEACEKEEPER stages will be installed and mated individually at the Launch Facility (LF). This is no simple task and requires several new complex transportation vehicles, special handling equipment and specially skilled technicians. For these reasons, SAC and AFLC have agreed to jointly maintain the PEACEKEEPER at F.E. Warren. Detachment 60, a 100 person AFLC detachment, has already been established and trained at F.E. Warren to perform missile stage processing at the base and stage assembly/disassembly at the LF. Detachment 60 personnel will also install the liquid fueled fourth stage and will, in a departure from past practices, accept custody for the reentry system, transport it to the LF, and emplace it on the fourth booster stage. This entire process is complicated by the fact that the PEACEKEEPER "flight line" is a hundred miles from the support base and hundreds of miles in length.

We will be making wider use of contractor support during the initial deployment of this new weapon system. Because of basing mode decision delays, training facility and equipment delays, and long lead times on initial spares, interim contractor support will be used to augment the SAC maintenance force until the entire support system is in place and in full operation. The initial SAC cadre has undergone intensive Type I contractor training on all the new equipment and procedures. To assist them in training the rest of the PEACEKEEPER maintenance force, dedicated contractor personnel have been assigned to the training division to help create lesson plans and conduct the training.

The past has taught us that quality wing training is pivotal to maintaining ICBM alert rates in excess of 95 percent. We kept those past lessons in mind with PEACEKEEPER and designed a wing training system that will serve as a command model for future training complexes. The new maintenance training facility known as the Training Instructional Facility (TIF) has long been needed by the maintenance community and consolidates most missile maintenance training under one roof. The TIF contains several part-task trainers that duplicate the actual PEACEKEEPER weapon system thus allowing the technician to transition from classroom to hands-on training in the TIF. Missile Guidance Set, Operational Support Equipment, Power system and environmental system training is available in the TIF. Across the street from the TIF an exact duplicate of a PEACEKEEPER launch facility is being constructed. The Launch Facility Trainer (LFT) is a high fidelity trainer that allows fault insertion and permits the technician to put together everything that he has learned at the TIF without traveling for hours to an off-base training site as is the case in MINUTEMAN. The PEACEKEEPER training system covers the entire training spectrum right on base and will insure the viability of PEACEKEEPER for the life of the system.

The task of deploying a new weapon system is not an easy one. It takes the full cooperation of many people in many different commands and agencies. That cooperation shown by everyone involved in the PEACEKEEPER deployment has been outstanding. We can take pride in our efforts and in the knowledge that because of those efforts the deterrent capability of the United States has been strengthened.★★

Maj Gen John J. Doran, Jr.
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# Combat Crew

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## ON OUR COVER

Combat Crew dedicates this issue to General Curtis E. LeMay, USAF (ret). For more on the man who helped build SAC into the world's most powerful military force, turn the page.

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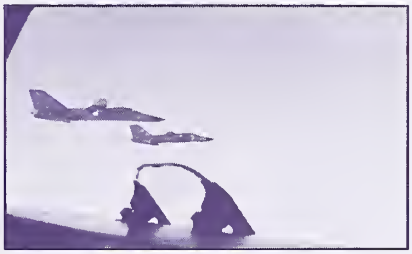
## FEATURES

Gen Curtis E. LeMay — The Airman's Airman...... 4

Dodging the Feathered Bullets ............................ 11



Operation Tea Party ............................................ 21

## DEPARTMENTS

Improve the Odds ................................................ 13
CFIC ...................................................................... 14
SIFC Crosscheck .................................................. 17
Safety Crossfeed .................................................. 20

**Next Month . . .** Results of the 1986 SAC Combat Weapons Loading Competition.

# General Curtis E. LeMay . . . The Airman's Airman

Mr J. C. Hopkins
HQ SAC/HO

When General Curtis E. LeMay retired as Air Force Chief of Staff on 1 Feb 1965, he had completed over 36 years of military service, an active career that both witnessed and was largely responsible for American airpower developing from essentially an idea, into the most powerful military force in the world. Proudly arrayed over his left breast pocket on that retirement day were nine rows of ribbons reflecting the glorious and somewhat turbulent career of one of this country's great military leaders. Without really working at it, General LeMay became a legend in his own time — and very early in his career at that — and remains so today as he approaches his eightieth birthday.

LeMay was many things — blunt, direct, a hard taskmaster, an innovator, an experimenter, and both feared and fearless — but he was not a politician, because as he admitted frequently, tact and diplomacy were not his virtues.

Born in Columbus, Ohio, on 15 Nov 1906, Curtis LeMay subsequently attended Ohio State University, majoring in civil engineering and joining the Army ROTC. It was through the ROTC program that he gained a National Guard commission and acceptance into the Air Corps flying cadet schools at March Field, California, and Kelly Field, Texas. He left college without graduating for cadet training in 1928 but was able to complete his schooling in 1932 when he received a Bachelor of Civil Engineering degree from Ohio State.

After receiving his second lieutenant commission in the Regular Army on 1 Feb 1930, LeMay served with several fighter organizations until 1937 when he transferred to the 49th Bomb Squadron of the 2d Bomb Group at Langley Field, Virginia. While serving with the 2d Bomb Group, LeMay became one of the first navigator-pilots on the new B-17 Flying Fortress and soon gained the reputation of being an expert-advocate of the long-range strategic bombing concept of warfare. As a navigator with the 2d Bomb Group, he participated in the 1938 mass flight of B-17s to South America. Although termed a good-will flight, this operation was in reality a demonstration to the world that the B-17 was ushering in a new era of long-range bombing. This point was further emphasized in a second 1938 B-17 flight in which LeMay participated — the interception of the Italian liner **Rex** in the Atlantic Ocean over 700 miles east of New York.

**His men were calling him *"Iron Ass"* by now, but it was an affectionate nickname born not out of malice but rather out of respect for his daring and innovative leadership and the realization that his incessant desire to "train, train, train" kept them combat effective and alive.**

By the time the U.S. entered WWII, LeMay had advanced to the grade of major because of his extensive experience in long range navigation and pioneer work in establishing B-24 bomber ferry routes to Africa via South America and to England via the North Atlantic. Rapidly advancing to lieutenant colonel on 5 Jan 1942, and to colonel on 1 Mar 1942, he was named commanding officer of the 305th Bomb Group stationed at Muroc, California, in the summer of 1942.

After training at Muroc, LeMay moved the group to England in the Autumn of 1942, where it became part of the Eighth Air Force and one of the first B-17 units to enter combat. In Feb 1943, he was awarded the Air Medal for "exceptionally meritorious achievement" as the B-17 pilot on five combat missions in late 1942. One of these missions was directed at the German held French port of Saint Nazaire and was particularly revealing to LeMay. He detected that many of his B-17s were missing their target because they zigzagged to avoid flak from the German ack-ack guns. As reported in *Time* magazine, LeMay "clamped a cigar in his jaw, led the next raid over Saint Nazaire, held his plane on course up to the bomb drop through murderous ack-ack for a grim seven minutes." On the following day, he issued a flat order: there would be no evasive action on the final bombing run. Subsequently, LeMay's group used a new combat formation in which 18 aircraft were so arranged that the formation's firepower could be concentrated against fighter attacks from any angle. These were the tactics that proved effective in the air war against Nazi Germany and augmented Col LeMay's growing reputation as an expert on strategic bombing. His men were calling him "Iron Ass" by now, but it was an affectionate nickname born not out of malice but rather out of respect for his daring and innovative leadership and the realization that his incessant desire to "train, train, train" kept them combat effective and alive.

On 17 Aug 1943, LeMay led the historic B-17 shuttle bombing mission that originated in England, struck Re-

As a navigator with the 2d Bomb Group, Gen LeMay participated in the 1938 mass flight of B-17s to South America. B-17s are shown at Lima, Peru, during one such flight. Although termed as goodwill flights, the operation was really a demonstration that the B-17 was capable of long-range bombing.

gensburg, Germany, site of the Messerschmitt factory, and then landed in North Africa. For this act, he received the Distinguished Service Cross. Promotions came rapidly after Regensburg: brigadier general, 28 Sep 1943, and major general, 2 Mar 1944.

In June 1944, LeMay left his position as commanding general of the 3d Air Division and moved to India where he took over the XX Bomber Command of the Twentieth Air Force. Under his direction, the new B-29 Superfortresses, based in China, made several attacks on Japanese industrial centers in Manchuria. From India, he moved on to Guam and took over leadership of the XXI Bomber Command, which was part of the Twentieth Air Force.

In early 1945, General LeMay made a most courageous decision — one of the most significant in the war — to conduct a low-level, nighttime incendiary bombing attack on Tokyo. On 9 March, his full force of 334 B-29's, stripped of all gunnery so they could carry more bombs, hit Tokyo, coming in at about 5000 feet altitude, too low for Japanese antiaircraft to be effective, and burned out over 15 square miles while killing more than 80,000 people. LeMay's remarkable success on the Tokyo mission established the pattern for the fire bombing campaign against Japanese industrial cities which continued until the end of the war.

When the XXI Bomber Command was discontinued in mid July 1945 and its mission was absorbed by the Twentieth Air Force, LeMay took command of the latter but only for about two weeks. On 2 Aug 1945, he became Chief of Staff, U.S. Army Strategic Air Forces under the command of General Carl "Tooey" Spaatz. In this capacity, he took part in the final target planning for the atomic bombing of Hiroshima and Nagasaki. General LeMay still contends there was no need for using the atomic bomb. He believes Japan could have been defeated without being invaded if the B-29s had continued their destructive fire bombing on Japanese cities only for a few more days beyond the Hiroshima date.

When the war was over, Ohio Governor Frank Lausche asked the returning hero to fill a vacant U.S. Senate seat, but LeMay declined because he wanted to stay in the Air Force. With demobilization being the keyword immediately after WWII, LeMay served in rather inconspicuous assignments at Wright Field in Ohio and in Washington, D.C., as Deputy Chief of Staff of Air Staff for Research and Development.

After the Air Force became an independent military service on 18 September 1947 and the Iron Curtain became more visible in Europe, LeMay was promoted to lieutenant

A B-17 under the warpaint of the 305th Bomb Group. Under LeMay's leadership, the 305th pioneered new combat formations that proved effective in the air war against Germany and augmented LeMay's growing reputation as an expert on strategic bombing.

general and selected to go to Wiesbaden, Germany, to command the U.S. Air Forces in Europe. His selection for this job proved to be a wise one for the Russians soon closed West Berlin. To counteract this move, General LeMay organized and directed the Berlin Airlift, which lasted from 26 June to 30 September 1948. Setting an example as he had done so often in WWII, LeMay occasionally piloted one of the transport planes involved in that humane act of supplying the basic necessities of life to West Berliners.

With the Berlin issue settled, LeMay was ready for a new assignment and it was a challenging one — Commanding General of the fledgling Strategic Air Command, a job he took over on 19 October 1948. Almost simultaneously, Headquarters SAC moved from Andrews AFB, Maryland, to Offutt AFB, Nebraska, an action that has been often erroneously attributed to LeMay.

Upon arrival at Offutt, LeMay did nothing to dispel the legendary stories of being a blunt, tough, cigar smoking general, who was all business. When a reporter asked what SAC's move meant to Omaha, he bluntly replied, "It doesn't mean a dammed thing to Omaha, and it doesn't mean a dammed thing to me."

In later years, LeMay explained that he was never very politic and that what he had meant to convey was that SAC was nothing and Omaha couldn't be proud of SAC until it was something. LeMay's basic philosophy was simply to build SAC into such a powerful nuclear striking force that no enemy would dare attack the United States. This was the concept of deterrence.

**When a reporter asked what SAC's move meant to Omaha, he bluntly replied, "It doesn't mean a dammed thing to Omaha, and it doesn't mean a dammed thing to me."**

In 1948, the entire Strategic Air Command numbered about 52,000 people operating around 830 primary type aircraft consisting basically of WWII B-29 bombers and F-51 fighters. There were a few B-50 bombers, updated versions of B-29s, and a smattering of new B-36 bombers. These forces were scattered over 21 Air Force bases, all located within the United States. At this time, there were virtually no family houses, except for a few for key personnel, and enlisted people lived in WWII open bay barracks. The crews were not proficient and people were being "trained" to handle several jobs. Many of the bombers were unserviceable, and a general atmosphere of apathy prevailed throughout the command.

LeMay set about to change all this and the results are legend. He brought in several young generals and colonels who had served with him in WWII. He set up rigid and realistic training, revitalized his lead crew system that had proved effective in the skies over Germany, instituted a spot promotion program for exceptionally deserving crews, asked for more and better weapon systems, and started doing something about the deplorable housing situation. At Offutt, he re-

A refueling version of the B-29 hooks up with a B-50 Superfortress bomber. B-50s entered the SAC inventory in 1948 as replacements for the older B-29s. After retirement of the bomber versions in 1954 KB-50s became efficient high altitude refueling aircraft which could refuel three planes at once.

B-29s operating in the China-Burma-India (CBI) theater. LeMay served in the CBI as head of the XX Bomber Command of the 20th Air Force. Under his direction, the new B-29 Superfortresses, based in China, attacked Japanese industrial centers in Manchuria.

placed open type barracks with dormitories, which became the model throughout USAF, and he helped obtain the first Wherry Housing for families. In these ventures he was joined by the citizens of Omaha, who soon came to love and appreciate the blunt spoken, tough general and adopted him as one of their own.

In his efforts to build the SAC deterrent force, General LeMay (he received his fourth star on 9 Oct 1951) found a sympathetic congress, amiable presidents, larger military budgets brought about by increased tension of the Cold War and the Korean conflict, and an Air Force that gave top priority to SAC's needs. To many, it seemed that whatever SAC wanted, SAC got. By the middle of 1957, when LeMay left SAC to become Air Force Vice Chief of Staff, SAC had come to be regarded as the most powerful and efficient military force that had ever existed. The entire command now numbered around 220,000 people, scattered at approximately 70 military installations in the continental United States, Puerto Rico, the United Kingdom, North Africa, Guam, Spain, Greenland, Newfoundland, and Labrador. Primary tactical aircraft numbered over 2,700, consisting largely of all-jet B-47 medium bombers and their companion tankers, the KC-97s. The B-36 bombers were still around, but they were being replaced rapidly by all-jet B-52 heavy bombers, and new jet tankers, KC-135s, were just starting to become operational.

**A tough, cigar-chewing taskmaster, Gen Curtis E. LeMay commanded the Strategic Air Command for nine years — 1948 to 1957.**

**Gen LeMay, fourth from left, stands at attention at National Airport in Washington, D.C. following completion of a record-setting flight. Demonstrating the versatility and strength of SAC's KC-135 tanker, Gen LeMay made history in 1957 in a 6350 mile nonstop unrefueled flight to Argentina. Originating from Westover AFB, the return flight set a new speed record of 11 hours and five minutes.**

General LeMay went to Washington but not as a politician. Compromise was a word he detested. To him, everything was either black or white. There was no gray area. LeMay was better known in military and political circles than General Thomas D. White, Air Force Chief of Staff, and many believed LeMay ran the Air Force while White handled matters with the Department of Defense and the Joint Chiefs of Staff.

Although not a favorite of President John F. Kennedy, LeMay received the latter's blessing to become Air Force Chief of Staff in July 1961. While he was quite successful in dealing with congressmen and fellow military men, LeMay did not fare well with Kennedy's Secretary of Defense, Robert S. McNamara. They disagreed over many issues including the TFX (F-111) fighter that neither the Navy nor the Air Force wanted but were forced to accept because McNamara so decided. On his bid for more and better strategic forces, LeMay found McNamara favored intercontinental ballistic missiles (ICBMs) over manned bombers. LeMay wanted more B-52s and B-58s and the new B-70 bomber to complement the ICBM, but McNamara stifled further bomber production, killed the B-70 program and the Skybolt missile that was being developed to replace the B-52's Hound Dog missile. Finally, they had basic disagreements over handling the growing conflict in Southeast Asia. McNamara won out, but LeMay prevailed in the long run. The B-52s are still operating and new B-1 bombers are now being delivered to the Strategic Air Command.

After retiring from the Air Force in February 1965, General LeMay and his wife, Helen, settled in California near their only child, Janie and her husband. LeMay is still active and makes frequent visits to Washington and to Omaha and Offutt. In a recently published biography, he singles out two military achievements as overshadowing all others — forcing Japan to surrender without an invasion and developing the Strategic Air Command into such a powerful force that it has prevented the outbreak of World War III.

Maj Robert L. Hill
Office of Legislative Liaison
Pentagon

# LeMay: Architect for Excellence

Although General Curtis E. LeMay was not the first CINCSAC — General George Kenney held that distinction — General LeMay's name has become synonymous with the most famous Air Force command. As the preceding article has shown, the rapid growth of weapons and manpower during General LeMay's tenure was impressive in itself; however, many of the most notable aspects of duty in SAC, also implemented by General LeMay, are equally significant.

From his World War II experiences, General LeMay was keenly aware of the need for constant training to hone the skills his warriors could be called on to use anywhere, anytime. The introduction of no-notice inspections, an emphasis on checklist and technical order discipline, constant aircraft and missile alert, and stringent security standards were also key elements of this drive for operational excellence.

An example of his efforts at building a professional and ready force involved flying safety. When General LeMay took charge of SAC in 1948, the command was experiencing an aircraft accident rate of 65 per 100,000 flying hours. The general soon determined much of this problem centered on his pilots either not properly using checklists or disregarding them. Through aggressive training and standardization evaluation programs, the flying safety record steadily improved to the point that by 1956, his last full year as CINC, the accident rate stood at 9 per 100,000 flying hours.

Realizing his major initiatives were creating new demands on the men and women of his command, as well as on their families, the general implemented other sweeping and far-reaching programs which subsequently served to improve the quality of life for all Air Force members. For example, because a new around-the-clock operation required a system of shift work, it was soon apparent open-bay barracks, a long-held military tradition, were woefully outmoded. As a result, General LeMay led the charge for new dormitories with individual rooms to enhance respect for an individual's privacy.

Other quality of life concerns were also high on the general's agenda for SAC. Enlisting the aid of Senator Kenneth S. Wherry of Nebraska, and other key members of Congress, large sums of money were appropriated for the construction of much needed family housing. This included the now familiar Wherry style, named in honor of the general's ally in this effort at improving living standards.

In addition to better housing, General LeMay was interested in providing on-base entertainment opportunities. An automobile enthusiast and inveterate shade tree mechanic, the general introduced the first auto hobby shops to the military and soon followed with other shops tailored to a variety of crafts and hobbies.

The introduction of comfortable housing, hobby shops and other quality of life initiatives were all lasting achievements which stamped the LeMay mark on the Air Force. However, perhaps one of his most popular and well-known accomplishments was the short-lived spot promotion program, an idea aimed at enhancing crew proficiency, stability, and esprit de corps.

General LeMay discovered that a large number of authorizations for officers and senior NCO's still existed from World War II, although the Air Force had experienced a significant drawdown in manpower following the war. This gap between authorizations and manning meant that there were promotion vacancies. Using his well-developed power of persuasion, he convinced the Air Staff that SAC needed these excess authorizations. This became the basis for his unique promotion system. These promotions, based on performance rather than seniority, were limited to the top 15 percent of the crew force, and a promotion could be as quickly withdrawn as it had been awarded. As one might expect, the rest of the Air Force was less than enthusiastic with the spot promotion program, since it applied only to LeMay's SAC. The program was eventually phased out as authorization and manning levels were adjusted. However, the fact that such a program did exist points to the imagination the general used in enhancing mission accomplishment.

The lasting results of General LeMay's leadership are found today in a fighting force respected throughout the world for its prowess and professionalism. As the architect for excellence in strategic operations and guardian for the welfare of his SAC family, the general displayed the rare ability to transfer his personal dedication to those who served under him. His emphasis on teamwork and deep belief in the individual working for the best interest of the organization are now a part of the SAC tradition. The reputation of this proud command remains a living testament to General LeMay's dynamism, visionary leadership and tireless efforts, and has ensured this warrior a hallowed place in Air Force history.

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**About the Author**

Maj Robert L. Hill is Deputy Branch Chief, Inquiry Division, Office of Legislative Liaison, Washington, D.C. Commissioned in 1973 through the AFROTC program at the University of Missouri-Columbia, Major Hill has had various assignments in SAC. These include missile operations and maintenance duties at McConnell and Minot AFBs, and staff positions at the 19th Air Division and Headquarters Eighth Air Force. In 1983, Major Hill was selected as the USAF Outstanding Company Grade Missile Maintenance Manager of the Year.

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# General LeMay Reflects on SAC

SrA Paul Zadach
March AFB

"Air power is still the decisive force and will be, as far as I can see. People who are in the blue suits now have a tremendous responsibility. They'll either do their job or they'll fail us, and they'll have less to do it with. So that means they have to be topnotch people, be dedicated and above all, they've got to be well trained." **Gen Curtis E. LeMay, USAF (ret)**

"My goal was to build such a well trained, strong and professional outfit that we wouldn't have to fight."

Retired Gen. Curtis LeMay said this was the direction he took in the early years of Strategic Air Command, and it's still an accurate description today. The longest serving SAC commander in chief reflected on his career, in this, the year of the command's 40th anniversary, during a recent interview here.

General LeMay, referred to as the "father of SAC," spent nearly 10 years at the helm of the command beginning in 1948. He helped build an all-jet bomber force after World War II, and under his supervision, plans were laid for the development and deployment of an Intercontinental Ballistic Missile force.

"One of the reasons I was able to accomplish the things I wanted to do was because I was the commander for such a long time," said General LeMay. "I took command the year after SAC was formed.

"The Strategic Air Command might have been formed on paper, but it sure wasn't formed as a command at that time, because we were still tearing the Air Force down from the war.

"As we disbanded the wartime force, most of the people who wanted to stay in were sent to bases near their homes, regardless of their specialty or whether they were needed at that base or not. As a result, the first thing we found out was that the units were not properly manned.

"By not being properly manned, the equipment was not properly maintained; guns weren't installed, radar was not operating, and the bases were not given necessary supplies to accomplish their assigned mission. They were trying to train everybody to do everything instead of specializing. Consequently, no one could do anything very well, but they thought they were

**Gen LeMay Reflects on SAC . . .**

**"The B-1B turned out to be a better airplane than I expected. When we laid the specifications for that airplane, we had just fought a long bitter battle for the B-70 and lost it. Congress and the administration had delayed the B-70 so long that it was obsolete. This time, we made some changes. It had been so long since we had a new weapons system, we decided it would be better to build the aircraft without any snags by not pushing the state of the art." Gen Curtis E. LeMay (ret)**

doing a good job. So the first thing we had to do was shake them up a little."

The general remembered ordering a maximum effort combat training mission against one of SAC's radar bomb sites at combat altitude, but not one crew in the whole command completed the mission. Based on that poor performance, the general started to build a combat outfit.

"I think we accomplished that goal, but it took some time. It's not something you can do overnight. We were working 70 to 90 hours a week back then to build a top notch unit."

Focusing on SAC's future, General LeMay said he hopes the command can reverse the trend of austere funding. "During these times of cutbacks, things are bound to drop off a little bit. I'm hoping SAC continues building its esprit de corps and dedication.

"I had an easy job. We were building something. It's much easier to go out and work hard, build something, see it grow, and see your accomplishments than it is to be retrenching and dropping off because of declining budgets. I don't think we're up to where we should be, although many of the principles we established in the early days are still in place and working fine."

The general went on to point out what he considers the most important doctrine for SAC people to follow for a successful future. "Train, train, train, train, train — my experience during the war was that every new unit that came into action for the first time fouled up the mission. You can't do that in modern warfare.

"We followed the principle that we operated in peacetime just as if we were at war. That way if war did come, the next day would be the same as today, because everything was exactly the same. If you do that, and practice every day, you'll be allright." As for SAC's people, the general thinks the Air Force needs to make sure it is getting its fair share of top quality people. This means going directly to the high schools and colleges and presenting the Air Force as a vocation to the best quality people.

"I think this would eliminate people who have been out of school for a while and simply join the Air Force because they couldn't find anything else," said General LeMay. "It's a technical profession these days, and if we don't get our pro rata share of the talent that's out there, we're not going to be able to do an efficient job of defending the country."

With the Air Force becoming more and more technical, General LeMay commented about two of SAC's newest aircraft, the B-1B and the KC-10.

"The B-1B turned out to be a better airplane than I expected. When we laid down the specifications for that airplane, we had just fought a long bitter battle for the B-70 and lost it. Congress and the administration had delayed the B-70 so long that it was obsolete. This time, we made some changes.

"It had been so long since we had a new weapons system, we decided it would be better to build the aircraft without any snags by not pushing the state of the art." The general said another change from the past was designing the airplane for maximum performance at low levels instead of maximum performance at high altitude. The general also supports the new KC-10.

"The KC-10 is a good airplane, it gives us the capability for radical changes in tactics, because it can go with the strike force. It can also refuel the tankers and be refueled itself, which gives us another option. What it actually gives you is the capability for a tremendous strike force anywhere in the world."

General LeMay emphasized the importance of learning from the past to ensure a safe and strong future. "The last world war was finished with air power being the decisive element. The B-29 campaign in the Pacific was the only case in history where air power forced the surrender without defeating the enemy forces in the field.

# Dodging the Feathered Bullets

Capt Russell P. DeFusco
BASH Team
Tyndall AFB, FL

Capt Russell A. Turner
USAF Hospital
Tyndall AFB, FL

A recent safety investigation board determined that the loss of an A-10 was partially a result of improper pilot response in an attempt to avoid hitting a flock of birds. The pilot pulled his aircraft down and away from the birds, striking high tension lines and causing the loss of the aircraft. Fortunately, he escaped without injury. The question many of you may have is "What is a proper pilot response for avoiding birds?" The question is more complicated than it may appear on the surface and specific guidance has not been available.

The bird strike problem is a serious one, costing the Air Force approximately $20 million each year. Nearly 2300 birdstrikes are reported to the Bird-Aircraft Strike Hazard (BASH) Team annually. While many of these strikes are unavoidable, a reduction in the hazard is possible by a variety of means, not the least of which is pilot response to an imminent strike. The effectiveness of a maneuver to avoid birds is dependent on a number of factors including human physiology, the decision process and aircraft response to pilot inputs.

Pilot reaction studies should be considered in determining proper pilot response. The average pilot requires 0.10 seconds for sensation of an image to travel from the eye to the brain. Focusing on the sensed object requires an additional 0.29 seconds. Perception, or recognition of the object, takes another 0.65 seconds for the average pilot. Each of the above factors will vary between individuals and in differing situations. Object size and color, relative motion, background color and composition, contrast, and light intensity level all greatly influence the amount of time required to perceive an object to be avoided. The problem doesn't end

there though, as the average pilot requires 2.0 seconds to decide to act on the perceived situation. Decision time varies with experience, level of concentration and situation awareness, but is significant in all cases. Once the decision to react is made, 0.4 seconds are required to operate the flight controls (i.e., pull back on the stick).

The response of the aircraft to control inputs varies among aircraft. Larger aircraft generally require significantly more time to react. The average USAF aircraft requires about 2.0 seconds to respond to flight control inputs required to move the aircraft 20 feet to avoid a birdstrike.

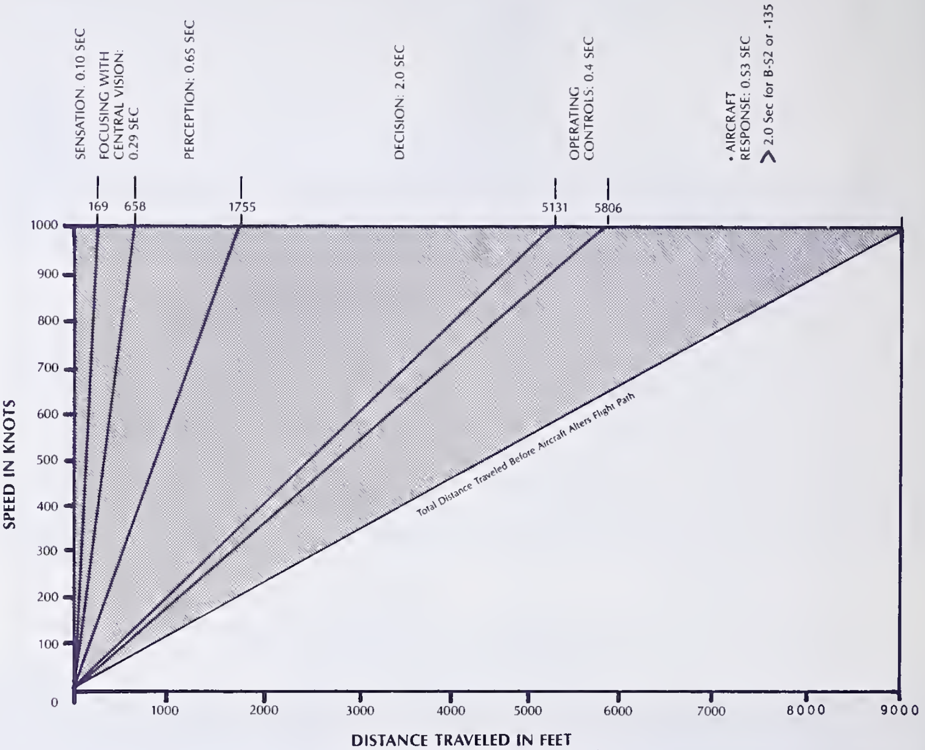
So, it requires approximately 5.5 seconds from the time of initial object sensation until the aircraft has moved sufficiently to avoid a birdstrike. In other words, at 370 knots, a bird must be sensed from a distance of at least 3342 feet, or 0.63 miles, to avoid colliding with it (Figure 1).

Frequently it isn't possible to maneuver to avoid birds, and the strike is inevitable due to the birds' proximity. A recent F-111 Class B investigation board found that "When one considers mental reaction time and the time that it takes for a control stick input to actually move the aircraft, it is unreasonable to assume that the pilot could have avoided hitting the bird." In situations like this (i.e., when the bird is within the gray region of the above chart), it is best to remain level, possibly duck your head and take the strike. Maneuvering within this region may only create additional problems such as pilot disorientation, loss of control, unusual aircraft attitude or increased damages following the birdstrike.

When birds are perceived outside the minimum distance required, maneuvering the aircraft to avoid the birds may prevent a strike. In most cases, birds will tuck their wings and dive if they perceive an oncoming aircraft as a threat. There are exceptions: Gulls, for instance often turn and attempt to outrun the oncoming threat and are often struck from the rear as a result. Although a few birds maneuver laterally to avoid danger, it is very rare that a bird climbs. Since you don't have the time to categorize the bird and its possible reaction, climbing makes sense. That gives you the best chance of avoiding the bird. It also gives you altitude and time for coping if you do take a hit.

**FIGURE 1**

Minimum distance traveled from instant object enters field of vision until pilot can change flight path. (Adapted from DeHart, 1985)



• The average Air Force aircraft requires 2.0 sec to respond to control inputs.

By pulling up, the pilot may be able to protect more vulnerable parts of the aircraft such as the canopy or engines by taking a strike on the undersurface of the aircraft. Most importantly, by pulling up the possibility of collision with the ground or other structures is greatly reduced.

Since bird avoidance is rarely a practiced maneuver, you, as a pilot, should have an idea of what to do before you encounter a feathered "bullet" in your airspace. In a multi-place aircraft crew actions in the event of a birdstrike should be briefed or reviewed before every flight. Remember that there are times when a bird is too close to avoid. Remaining straight and level and protecting your face in this situation is best. When you can respond, pull up to avoid damage to your aircraft and possible injury to yourself.

—Thanks to TAC ATTACK, April 1986

## THE AUTHORS

Capt Russell P. DeFusco

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# Learn to Survive

Maj Larry Nelson

Military leaders are usually remembered for their successes. These successes can be attributed to sound, well developed tactics. Those leaders who prevailed understood the aircraft, the mission, the employment of their weapons, and the threat. They learned from their predecessors without living in the past. To paraphrase General Patton, the great leaders made tactics fit the circumstances, rather than vainly trying to make the circumstance fit tactics. The challenge, therefore, is selecting tactics which will succeed. However, different opinions exist. Where can an organized approach to employment tactics be found? For us, the answer is SACR 3-1, Mission Employment Tactics.

SACR 3-1 is currently under development and will be the definitive source of tactics information available in SAC. This regulation is comprised of 14 Volumes. Volume I discusses nuclear employment and volume III contains detailed information and instructions for mission preparation of SAC conventional employment missions. Volume II describes threat capabilities and limitations. There is also a separate volume for each SAC aircraft which details that aircraft's capabilities and tactics. A complete list of the volumes is shown in Table 1. A set of volumes which should be used by the aircrew as an employment reference includes Volumes I, II, III and their aircraft volume (Volumes I or III may not apply to some aircrews). Volume VIII is complete and is being used by FB-111A aircrews. The other volumes are in various stages of development and will be available before this Christmas.

This manual does not dictate tactics nor does it standardize them. The factors and tactics are meant to help aircrews think and plan a mission, execute it, and return home safely. To make an analogy, this manual is a book on cooking but it is most definitely NOT A COOKBOOK. A cookbook gives recipes and implies that if you add all the ingredients in exactly the same way each time, you will get a predictable product. Unfortunately, if we employ the same tactics each time, we become predictable. The enemy will know what to expect and plan for it. Mission planners are cooks who must pick and choose their own ingredients. They must know all the planning factors, build a mission plan, and be prepared to alter their tactics enroute according to the situation. True, this manual discusses specific tactics; however, it is meant to stimulate your thinking as you plan your mission. There may be ultimate cookbooks, but there are no ultimate tactics.

We will continue to build and expand on tactics. In the final analysis, each aircrew member bets his life on the tactics he knows and uses. In this regard, your comments and inputs are requested to ensure that new lessons are written down, not simply talked about and forgotten. The method for making this input will be found in another new regulation, SACR 55-133, SAC Tactics Program.

SACR 3-1 is organized to provide users with documents needed to effectively plan and execute a combat mission; however, a thorough knowledge and understanding of applicable technical orders and other reference documents is necessary to supplement information contained in SACR 3-1. SACR 3-1 provides no authority or sanction to depart from established training procedures and directives.

Regarding the subject of training, we have often heard we should "train the way we intend to fight." While this is 100 percent accurate, you should remember that in the fog of war you will "fight like you train." Each crew member must attempt to train to be prepared for combat. Bad habits developed during training might kill you during training or in combat.

**TABLE 1**

| | |
|---|---|
| Vol. I | Nuclear Employment |
| Vol. II | Threat Reference Guide |
| Vol. III | Conventional Employment |
| Vol. IV | B-1B Tactics |
| Vol. V | B-52 Tactics |
| Vol. VI | KC-10 Tactics |
| Vol. VII | KC-135 Tactics |
| Vol. VIII | FB-111A Tactics |
| Vol. IX | SR-71 Tactics |
| Vol. X | U-2R Tactics |
| Vol. XI | RC-135 Tactics |
| Vol. XII | E-4 Tactics |
| Vol. XIII | TR-1 Tactics |
| Vol. XIV | EC-135 Tactics |

## ABOUT THE AUTHOR

Maj Larry Nelson is a tanker tactics development officer at the SAC Tactics School. Prior to this assignment he flew RC—, EC— and KC—135s at Offutt and Grissom AFBs.

# Bomber Defense From

An engagement by an airborne interceptor makes it imperative to know what action to take at the proper time. To miscalculate a move or call a wrong maneuver could render your sortie ineffective.

Crew coordination and knowing the enemy are the key elements to bomber defense. It is the pilot's job to fly the aircraft (keeping the aircraft out of the dirt and following prescribed maneuvers). The navigators' job is to maintain nav points and timing while updating the crew on known threat areas. The job for the defensive team is to prioritize items of interest, known threats and to relay "real time" information to the crew. Giving evasive action calls places one half of that defensive team (the gunner) in a situation of having to know his aircraft's strengths and weaknesses and those of his adversary.

The main objective of this article is to cover the mechanics and the philosophy of bomber defense. Evasive maneuvers must be based on sound judgment. The following information will assist you in solving the evasive problem and possibly allow you the extra seconds you need to neutralize the threat.

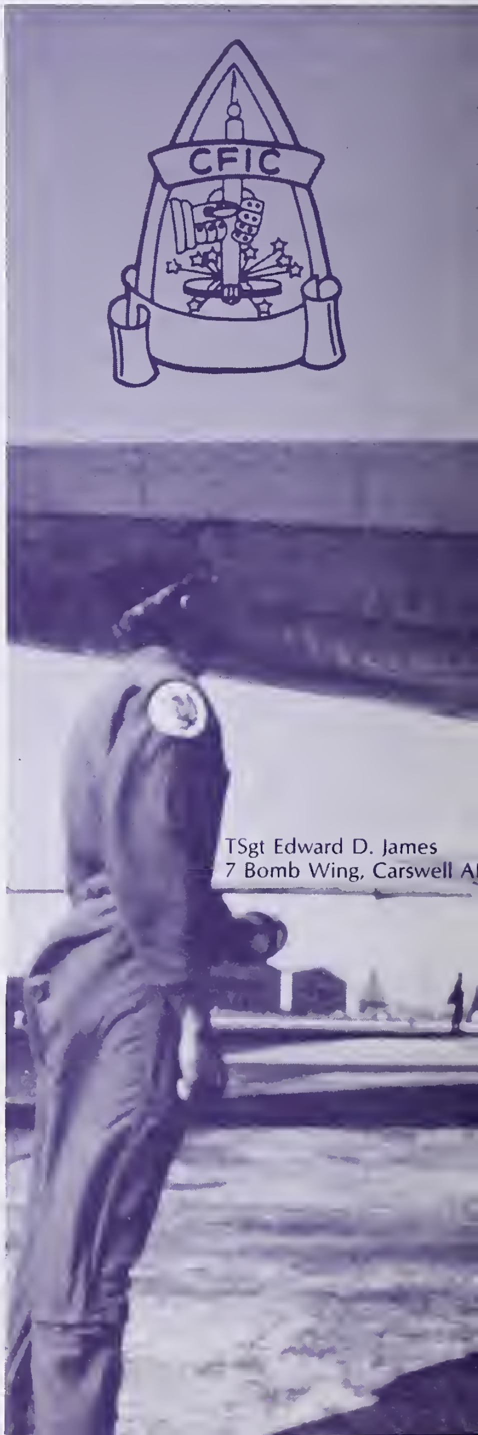
Consider this: The better the electronic countermeasures (ECM), the more we need the gunnery system. Once you have swamped the enemy's electronic measures, he is forced to go visual to make a kill. That's when "lethal defense" becomes important. No amount of ECM will defeat a visual attack. With these facts brought to light, let's review the factors that make up the intercept and what we can do to turn the tables in our favor.

The gunner must take the two (B-52H) or three (B-52G) dimensional information he sees on the scope and mentally convert this information into the four dimensions of azimuth, range, elevation, and time. Failure to do this will seriously hamper chances of escape. The fighter pilot operates in the four dimensional world. If you rely only on the information presented on your indicator, you deny yourself up to half of the information available to your adversary. The gunner must have the ability to assimilate all the information and use it to his advantage.

The mechanics of bomber defense involve using your speed, altitude, angles, and timing correctly. Speed in a B-52 is a relative thing. The B-52 speed envelope is not very wide; therefore, speed changes must be used to your advantage. The idea is not to outrun your opponent but to use speed changes to complicate his computing problem. Keep your speed up so the maneuvers you accomplish will not dissipate the kinetic energy of your aircraft. Nothing would be more satisfying to your adversary than to bag a bomber without firing a shot.

Altitude is the second factor to take into account in bomber defense. High altitude flying complicates your survival problems in that you give the adversary more maneuvering room and allow him to use speed and turn advantages. However, unpredictable maneuvers are a plus factor in your favor. Do not maintain a sustained turn except at extremely short ranges. Rather, make a series of erratic "jinks" using the vertical and horizontal planes. In a high altitude regime constant erratic movements tend to confuse the bandit's acquisition. The object is to get him to overcommit in one direction, then slip out of his way. This causes him to go into a high power setting to reaccomplish his attack. Since you are in his arena (high altitude) use your strong suit — unpredictability. Keep in mind that your turn radius is enhanced at high altitudes. You have more wing area to "bite" the thin air than your adversary, who is looking to give you your final critique. Use those wings to make the turns you need to stay a step ahead of him.

Let's talk about low altitude maneuvers. Less is more. The closer to the ground you get, the more you complicate the intercept problem. Since there are six of you managing a flying machine down low, as opposed to one or two of the adversary fighter crew, your job is to make his acquisition problem so difficult that he must choose between acquiring you or terra firma. If he goes past the task saturation point, you have successfully countered the intercept. Did you know that "airbrakes six" will cause the aircraft to climb? Do you know when to make a tactical descent? Use the vertical plane. Don't get stuck with the



TSgt Edward D. James
7 Bomb Wing, Carswell A

# a Gunner With a View

same three maneuver calls. Once you've shown that your bag of tricks consists of only three maneuvers, you are just showing reruns. Introduce altitude variations.

On training missions try practicing low level maneuvers up to level one when evading an attack. Maneuvering at low altitude should be used to enhance your survival. Practice unpredictable ridge crossing. Terrain mask so as not to present yourself as a "blue sky" silhouette. Review and practice "evasive action" throughout your low level route. Plan and practice using terrain masking as often as possible, always using terrain features and OAS strengths to your advantage. Know your crew's procedures. Have them know yours. Low altitude flight complicates and can deny an intercept. Evasive maneuvers further compound the problem. Again, the key is unpredictability. Know your aircraft's performance at low altitude. Keep your turns short and choppy. Do not use large bank angles.

Did you know the B-52 flies nose low at higher indicated airspeeds? How does this affect you? You must interpolate the information on your scope. Practice running degraded FCS procedures low altitude. Know how ANL, STL, dunk pulse, video blanking, and non-linearity affect your target detection. Notice and understand how differing terrain features will affect your visual intelligence. Extremely low altitude should aid you in target detection; and conversely, complicate the bandit's intercept by denying him vertical maneuvering and adding turbulence to his problems. Low altitude will also complicate your timing and navigation. However, arriving at your target late is a lesser sin than not arriving at all.

Angular displacement is the third tool in our bag of tricks. How does this relate to the fighter intercept? Angles will determine his overtake time and your exposure to the fighter's lethal weapons. Remember to minimize your exposure through well thought out angular displacements. Avoid angular displacements that would allow the fighter pilot to predict a future impact point. Do not allow the bandit to make a "no brain" intercept due to your ignorance of angle relationships. To delve into the angle arena dust off your old school books and look into fulcrums and pivot angles. If you have a working knowledge of geometry and trigonometry these terms will be clear to you. A fulcrum is defined as the support about which a lever turns. A common fulcrum is a see-saw. In bomber defense a theoretical see-saw always exists between the bomber and the interceptor. What the bomber crew wants in this contest is to keep the pivot point as close to the bomber as possible. Unpredictable maneuvers keep that theoretical pivot point on your side of the see-saw. This causes the fighter to make exaggerated movements to keep up with where he thinks the bomber will be in the future. In the "tall tail," when the front compartment moved one foot, the tail compartment moved five feet. You want this kind of relationship during your encounters. The key is to keep busy with maneuvers. That is, keep them unpredictable, short, and crisp. Let the other guy go through the high "G" loads. When your bomber banks consistently while the bandit is at considerable range the fulcrum/pivot angel works in his favor. You pull the "G's" and the bandit makes minor corrections to keep you in his sight. This is wasteful because he stays within his track and launch parameters which improves his probability of a kill.

While we're on this subject, let's discuss cut-off angles. When flying in cell and performing a joinup the best way to gain on the lead aircraft is to use the cutoff angle, or turning inside. While this is good for cell joinup, it can be a fatal error during an intercept. You do not want your opponent to turn inside you. To keep this from happening, do not call for a sustained "break" maneuver when the fighter is more than a mile away. This will allow the bandit to make only slight corrections to cut down your elbow room. He doesn't have to work very hard to do his job; getting you into his firing range or a good launch position.

When dealing with target closure rates you have variable speeds to contend with. One is overtake speed, the other is angular velocity. Angular velocity is similar in principle to being in the slow lane of the freeway and having an auto merging beside you from the ramp. Though his speed is comparable to yours the angular rate of change allows him to close with you very quickly. So it is with the bomber and fighter. You can use this angular velocity to your favor by proper timing of maneuvers and slipping the bandit past your tail. You not only cause the interceptor to expend fuel through re-engagements, but also prevent him from obtaining a favorable missile launch or gun firing position.

Time (pause) and timing are also important. Mastering the relationships of speed, altitudes and angular velocity are three strikes in your favor. Yet, having a poor sense of timing could put you and your crew in a survival situation. Allow yourself enough time to make a maneuver. Give your crew enough time to complete a maneuver. It's been noted that some gunners give maneuver calls that sound like machine gun fire. You're not in an F-16. The B-52 doesn't change direction at the speed of thought. When you call for a maneuver, give the crew a chance to respond, and then allow time for the aircraft to respond to the pilots' inputs. This causes you to build lead time into your game plan. Let the bandit follow your lead before introducing another maneuver. You don't want to just wave your wings at him. Pilots have long complained that some gunners give an initial call, then nothing more is heard from him. Update the crew as the situation changes. Is the bandit closing, crossing, passing left or right, or even breaking off the attack? Don't keep secrets. Give timely updates.

The next, and maybe the most important section of this lesson, is the philosophy of bomber defense. The initiation of an attack phase is covered very well in SACR 55-21. What the book doesn't say is this: there is a sharp, motivated adversary in the other aircraft. He is aggressive and smart. Treat him that way. Do not allow him to make quick work of you. If you perceive the initiation of an IR attack, counter the IR attack. Keep in mind that if your IR countermeasures are successful, he will shift into another attack phase. This means he will change his game plan to achieve the same results. You are not dealing with a T-1 card or tape. You are dealing with another thinking, calculating man. Relay "real time" information to the crew. The fighter pilot may use the IR attack as a "cover" to get in close for a gun shot. Be flexible. Counter the bandit's advantage with a change of tactics. You may successfully disrupt his attack to the point where YOU get in a good shot. Cause the bandit to maneuver and place him in a position of having to second guess your erratic and unpredictable flight path. Always maneuver with the idea of being versatile enough to change tactics at a moment's notice. Save airspeed manipulation for close in combat. "S" turns don't have to be neat and clean. After completing one portion of the maneuver make another turn in the same direction, but more dramatic. Use the sun, cloud decks, terrain masking, or even a flock of birds (eight engines vs one/two). Unleash the "fighter pilot" in your pilot team. Have a fighter pilot sit down with your crew to explain how he attacks a B-52 and use that information to exploit fighter weaknesses. Remember get a good feel for relationships of points, angles, time and lines involved in the intercept problem. Make the bandit "react" to your moves, not "predict" them.

**"Practice the way you want to survive by not shooting straight and level. After the shoot-look-shoot, get out of there. Break hard! MOVE!"**

A word on the shoot-look-shoot school of thought may be in order. As long as you have a closing target on your indicator, he is a threat. First, determine what burst length you will use. There's no one looking over your shoulder, so you may want to conserve your ammunition. Second, determine if the bandit is pressing the attack after having been fired upon. You don't have much time and you probably won't get a visual confirmation, so go with the information you and the EW have in front of you. If it looks threatening, shoot again and break hard into your foe. Deny him the close-in shot and avoid the ram attack. Your target is not guaranteed to disappear off the scope as in the WST. Sam Turner and Al Moore's MIGs did disappear after their shots, but yours may not. Your target may bloom in size before disappearing or simply break up in large pieces as it disperses like chaff. Regardless of the scope presentation, if you are uncomfortable at what you see you'll probably want to shoot again.

Always be aware of your system settings. Are the ATAs on and causing you to acquire spent casings and links? Is your STC blanking out JUST the ground returns? Do you know what your EW is doing with the chaff? Be sure to use the chaff wisely and don't allow the bandit to "walk" up the chaff. Don't give him the advantage of hiding in the chaff cloud while improving his firing position on you. Don't be guilty of faulty logic. It has been noted all too often in simulators that some gunners roll the bomber out to fire at the target, and then wait for the next attack. Practice the way you want to survive by not shooting straight and level. After the shoot-look-shoot, get out of there. Break hard! MOVE!

In closing, understanding the philosophy and the mechanics of bomber defense can make the difference between a mission accomplished and a noneffective sortie. When the bogie becomes a bandit and closes within the FCS coverage, knowing the FCS, your crew, your aircraft, and your adversary will help in stacking the deck in your favor. — A note of thanks to TSgt Pat Fagan, HQ SAC/DOO, for his editorial assistance. Ed

CROSS CHECK SIFC

# Out With the Old, In With the New

Maj Greg Fonner
SIFC, Castle AFB

By now, everyone should have had a chance to look at the Urgent Change Notice to FLIP GP. In it, you'll find that our old friend, the DD Form 175, has had a facelift. If you haven't seen or used the new DD 175 yet, you will shortly.

The new lean and clean format is easier to fill out, easier for the Base Ops dispatchers to work with, and has more useable room than the old form. It groups flight plan information in a manner that facilitates the transfer of required information from your piece of paper to the computer's memory banks at the ARTCC. Additionally, it segregates the "bookkeeping" information at the bottom of the page so that it's out of the way while the dispatcher is transferring your plan into the computer.

One obvious change is the loss of the Standard Instrument Departure boxes. Since SID's are part of the route of flight, that's where you'll annotate them on the new form. You can still use the coded SID identifiers and follow up with the SID termination point or a published transition fix. Then continue with your route of flight. If you want a Radar Departure, request one in the remarks section. You'll also notice that passenger/cargo codes no longer exist, so that portion of the remarks block has been deleted. Also deleted is the "distance to destination" block.

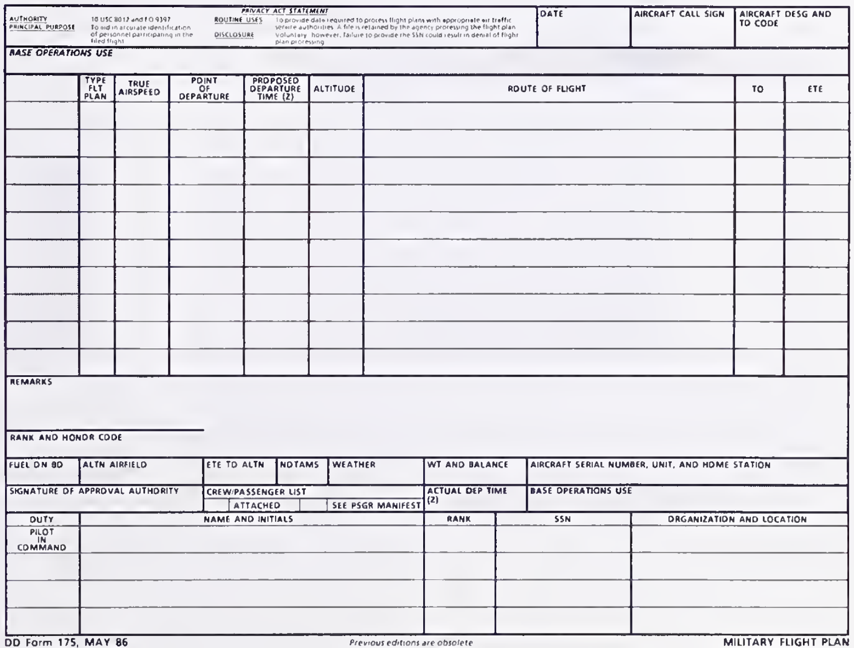
"New" information blocks are provided for the type flight plan (I=IFR, V=VFR, D=DVFR), true airspeed, point of departure (or point where IFR will begin), proposed departure time, and altitude. These new blocks allow you to fill in the required information for your stopover or enroute delay flight plans, making the route of flight block totally available for route information. This, coupled with the fact that there are now ten available lines, means that all but the longest flight plans should fit comfortably on a DD 175. Should you desire to use a SAC Form 207 the rules haven't changed, just remember that there are now spaces on the DD 175 to handle your proposed departure time, speed, altitude, etc. The SAC Form 207 will work best for route information, which is exactly what it's designed for.

There's a Note associated with the Proposed Departure Time instructions reminding pilots to tell Base Ops or a Flight Service Station whenever ground delays will exceed the filed departure time by one hour or more. Doing so will make sure that your flight plan remains in the Center's computer until you're ready to depart. One hour is the minimum time that each center can use to drop flight plans that haven't been activated. Most ARTCC's give a pilot between 90 minutes and two hours before they purge inactive flight plans from the computer. Check with your local Base Ops to find out how long you have in your particular Center's airspace, because the times do vary.

The UCN has a very good discussion on area navigation procedures. There are a couple of points that we can address, however, that should help avoid confusion. RNAV stands for area navigation. An extensive system of published RNAV routes used to exist in the lower 48 states and Alaska. After the Air Traffic Controller's strike, the published RNAV system was abolished (with the exception of the Alaskan routes) because any attempt to monitor/control the structure placed too great a workload on the remaining controllers. Today, the air traffic control system has recovered to the point that it can handle aircraft who file for RANDOM (as opposed to published) RNAV routes and have equipment capable of keeping the aircraft on course between the filed points. Since most SAC aircraft are now certified for RNAV, you have a choice of two methods. You can either file waypoints based on known fixes (named intersections, a NAVAID, or radial/DME positions) or by latitude/longitude coordinates. The first method is very similar to normal Degree-Distance Definition rules and works the best for normal mission profiles if you care to use it. Just adhere to the filing rules in FLIP and you'll have no problem. The second method has some restrictions that effectively remove it from consideration. First of all, you have to fly above FL 390 in order to use lat/long rules, and secondly you can't file in New York, Cleveland or Chicago centers. If neither of these restrictions affect you, then feel free to use the lat/long method. Otherwise, stick with defining your waypoints based on points that are well understood in the national airspace system and already programmed into the ARTCC computers.

Hopefully you've found the new format easy to use, logical, and straight forward. Having an increased number of filing options means that pilots have more freedom to operate within the system. It also means that there's increased responsibility to understand the rules and apply them correctly. Plan your flight well, then have a safe flight.

*Editor's Note: August's SIFC Approach article, "Don't be Gross," featured a fictitious gross navigation report using a KC-10 as an example. A photo of a KC-10 also served as an art head. No inference was intended that KC-10 crews are inordinately guilty of navigation errors.*



PRIVACY ACT STATEMENT
AUTHORITY: 10 USC 8012 and EO 9397
PRINCIPAL PURPOSE: To aid in accurate identification of personnel participating in the filed flight
ROUTINE USES: To provide data required to process flight plans with appropriate air traffic service authorities. A file is retained by the agency processing the flight plan
DISCLOSURE: Voluntary, however, failure to provide the SSN could result in denial of flight plan processing
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AIRCRAFT CALL SIGN
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REMARKS
RANK AND HONOR CODE

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SIGNATURE OF APPROVAL AUTHORITY
CREW/PASSENGER LIST ☐ ATTACHED ☐ SEE PSGR MANIFEST
ACTUAL DEP TIME (Z)
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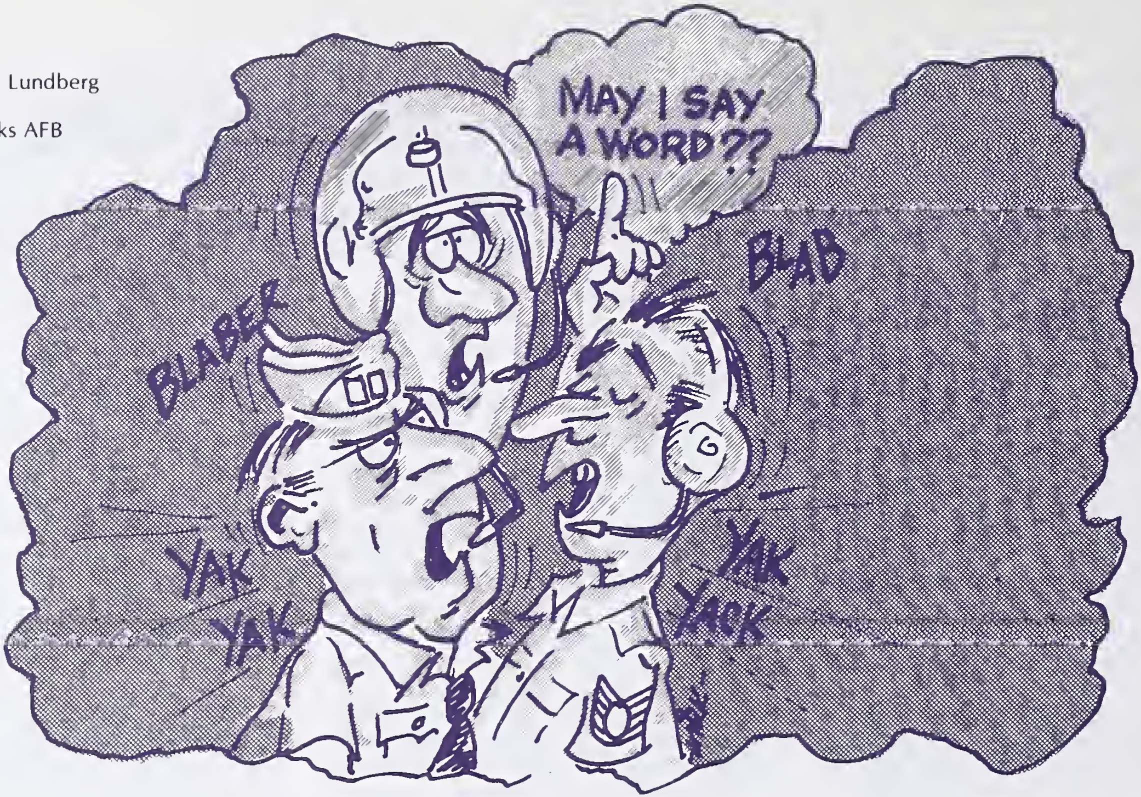
DD Form 175, MAY 86 *Previous editions are obsolete* MILITARY FLIGHT PLAN

Capt Mark Lundberg
319 BMW
Grand Forks AFB



# Using the UHF/HF Phone Patch

**Imagine that you are orbiting at the ARCP on a refueling mission and haven't established contact with your receiver. After you ask the air traffic controller if he is working your receiver, he replies "negative." Further, you are out of UHF radio range with your home station and the receiver's home station. It is now five minutes before the ARCT and you are trying to decide what to do.**

This situation is not a strange occurrence to many of us. Obviously, you want to know the status of your receiver in order to make a decision and map out your plan. Is he experiencing maintenance difficulties on the ground, is he on takeoff roll, or experiencing an inflight emergency? How can you find out?

The purpose of this article is to explain how to use the UHF/HF phone patch to obtain information for this and many other inflight situations. I will describe what a phone patch is, some of the procedures and techniques for using it, and how it can be used as an effective means of communication.

The phone patch is a means of air to ground communication through the use of radios, landlines, and a patching system. The phone patch electrically links radios with landlines. As such, it augments the capabilities of aircrew radios. It is also a means of extending the capabilities of landlines by permitting communication through the air waves. The link is made at the communication console of a command post controller or HF operator. The landlines to be linked can be class A, B, or C dial lines, commercial long distance, and SOCS (SAC Operations Conference System) lines. With these capabilities, an aircrew can conceivably communicate with virtually anyone in the world. Now let's look at how to use the phone patch including some procedures and techniques.

The phone patch is an easy system to use. The aircrew desiring a phone patch can contact any command post or Giant Talk station and request a patch with another party. The request should include the call sign or office and telephone number of the requested party. The command post controller/Giant Talk operator will then dial the number and complete the patch. Easy!

Problems arise, however, because many aircrews and landline parties are not familiar with the procedures of the phone patch. As a command post controller, I have run hundreds of phone patches and would like to point out a few tips.

First, we must understand that the phone patch is a three party coordinated effort. All three parties, the aircrew, controller, and ground party, must work as a team to make the phone patch work. This is because the phone patch is not like face to face or phone to phone conversation. Rather, it is like radio or radio conversation. One party transmits while the other party listens. The roles are then reversed to effect two-way communication. Each party must take turns in transmitting and receiving or else they will "walk on" each other's transmission. The phone patch is therefore conducted in a back and forth style.

Secondly, we must understand that the command post controller/Giant Talk operator is the vital link between the two conversing parties. The controller/operator must monitor the conversation to effect the communication. Since the landline party cannot key the mike to transmit like the aircrew, the controller must do it for him. Each time the landline party wants to speak, the controller/operator must depress the "push to talk" button on his communication console. This allows the landline party to broadcast over the air waves. The landline party cannot speak to the aircrew unless the controller/operator performs this action. Similarly, the controller/operator must release the "push to talk" button when the aircrew wants to talk.

Since the controller has to monitor the conversation, he must anticipate the direction of the conversation. That is, he must know when one party has completed its transmission, and when the other party is ready to transmit. This way, he can change the position of his console button to electrically change the direction of the conversation. This is not an easy task since the controller cannot read minds. Furthermore, the controller is often busy, working a number of other activities which divide his attention simultaneously. The result may be incomplete or missed transmissions along with three frustrated parties.

There is one simple solution to this problem. Say the word "over" each time you complete a transmission. This applies to both the aircrew and the landline party. This will cue the controller to change the position of the "push to talk" button on his/her console. Moreover, composing what you are going to say before you talk, and speaking in complete thoughts will also aid in the effective use of the phone patch.

Thirdly, the phone patch can only be conducted on radio frequencies compatible with the command post console. For SAC command posts, only UHF frequencies 311.0 and 321.0 are available. 311.0 is the SAC common primary frequency and is used on a continuous basis. It is used for the alert force, coordinating maintenance on daily flyers, last chance inspections, passing maintenance writeups, etc. Because phone patches can often be lengthy and tie up the radio for an extended period of time, UHF 321.0 should be used for the patch. Most command post controllers will ask an aircrew to switch to 321.0 when they receive a request for a phone patch. You can avoid this step by making your request on 321.0 which is also monitored continuously.

Phone patches can also be conducted through the use of other military command posts. Other Air Force commands, such as MAC and TAC operate their own command posts which also have phone patch capability. Refer to your IFR supplement for call signs and frequencies for these command posts. Similarly, other branches of the service such as the Army, Navy, and Marines operate command posts with phone patch capability. With this large number of military command posts available, you will almost always be in radio range of an agency that is able to phone patch you to a desired party.

If you are out over the ocean, flying in a desolate area, or unable to contact a command post, you can work the patch on an HF radio through a Giant Talk station. The Giant Talk system consists of nine stations located throughout the world: Nebraska, California, Maryland, Alaska, England, Turkey, Philippines, Greenland, and Japan. Giant Talk facilities operate 24 hours a day, seven days a week, the same as SAC command posts.

Finally, a few thoughts about communication security. SACR 700-20, Vol III, states that the phone patch is not a secure voice communication instrument. Therefore, communication security must be practices at all times. Anything of a classified nature must not go out over the air waves. Call signs should be used at all times if possible. Any reference to persons who do not have an assigned call sign will be by the individual's last name only. Rank, first names, and location names will not be used over the air. Challenge and reply authentications should be used when the authenticity of the other party is in doubt.

As you can see, the phone patch is an extremely useful means of communication. Its uses include coordinating mission changes such as new low level entry times or air refueling control times, finding out the status of your receiver or tanker, pilot to metro information, EAM's, offload reports, position reports, obtaining assistance for system malfunctions or inflight emergencies, and various other operational reports. By extending the range of aircrew radios through the patching of landlines, an aircrew can talk to virtually anyone in the world. The next time you need inflight assistance, consider the phone patch as one of your best alternatives.

## ABOUT THE AUTHOR

Captain Mark H. Lundberg is a command post controller for the 319th Bombardment Wing and 321st Strategic Missile Wing, Grand Forks AFB, ND. He is also an aircraft commander on the KC-135. He earned a master's degree from Gonzaga University in Business Administration and is a distinguished graduate from Squadron Officer School. Capt. Lundberg won the SAC Officer Controller of the year award for 1985.

SAFETY
CROSS FEED

# Looking Ahead

## A decade of security through global air power

*This thought provoking article from General LeMay first appeared in Combat Crew in March 1956. Ed.*

Strategic Air Command's tenth anniversary this month marks a significant milestone. From its origin in 1946 SAC has grown into a potent global force, recognized not only for its combat potential but also for its efficient, safe flying operations.

Until June 1950 flying safety in the command was a relatively small, delegated duty, mostly concerned with reviewing and evaluating accidents for trend factors that would indicate a need for corrective action to prevent recurrence of similar type accidents.

Advent of the Korean situation focused attention on the urgency of our mission. It became increasingly apparent that losing nearly ten per cent of our assigned aircraft annually to accidents was unsatisfactory and that unless these inordinately high losses were curtailed it would prevent, or at least delay, our achieving anything like the combat potential required to give our nation the security that only a strong global force could provide.

It was then we decided to place greater emphasis on accident prevention. The Flying Safety Branch was raised to division status and a two-phase program — prevention and investigation — begun. Instead of merely investigating accidents after they occurred, our safety effort was directed to seek and ferret out unsatisfactory conditions conducive to accidents. A realistic incident reporting campaign, inaugurated the following year, expanded the program and spread the knowledge gained from the reporting of hazardous occurrences. Addition of the safety committee, monthly and yearly trophy awards, and individual recognition for crew, pilot and maintenance personnel, welded each year-long campaign into a competitive command-wide safety effort.

How well our flying safety program has succeeded is evidenced by SAC's steadily decreasing accident rate. Reduction of the rate from 54 accidents (major and minor combined) per 100,000 hours of flying in 1949 to 11 last year represents one of the most significant single accomplishments of SAC's first decade. But, while our progress in flying safety from the days of the B-29 to present-day high performance aircraft has been rapid, we are still plagued with unnecessary accidents that are costly in lives and equipment.

Analysis of the accidents that occurred as recently as January of this year reveals that failure to follow SOPs and lack of crew coordination and emergency procedure know-how was a primary or contributing cause factor in seven of the accidents recorded during the month. This indicates a definite need for additional emphasis in these areas during the balance of the Safe Aircraft Campaign for '56.

The slightest deviation from the high professional standards maintained during the past six years can result in staggering costs to our combat capability and an unacceptable rise in the accident index.

By instilling in everyone in SAC the firm conviction that he has a personal challenge to reduce the accident rate, we can continue to make further progress in flying safety. The tangible savings in lives and equipment, and the salutary effects on morale and combat readiness, will be reflected in achievement and safety consciousness for years to come.★★★★

General Curtis E. LeMay
Commander in Chief

Project Warrior

# Operation Tea Party

Maj Ken Anderson
Capt Dino Atsalia
Capt Pat O'Connor
509 BMW, Pease AFB

FB-111s rejoin on a 493rd TFS F-111F over RAF Lakenheath. Pease crews flew orientation missions with the USAFE F-111s.

"Boston 01 flight check."

"Two."

"Three."

"Cowden, Boston 01 flight."

"Roger Boston flight, Cowden, pass your message."

"Cowden, Boston 01 flight, three FB-111s request clearance on the range for the 11:30 to 1200 scheduled range time."

"Roger Boston flight, pass your crew numbers, type releases and target."

"Cowden Boston 01 flight lead crew number E-33, two E-19, three E-35, radar laydowns followed by visuals on target eight."

"Roger Boston flight, cleared hot, report final for target eight."

"Roger Cowden, Boston flight, take spacing, 500 knots, wings 44, 200 foot TF . . ."

Sound familiar? It is not the usual stateside STR call-in, but one to a United Kingdom bombing range. For the 509 BMW, Pease AFB, calls like this were part of every mission flown from 15 July to 10 August during the wing's deployment in the United Kingdom for Operation Tea Party.

The 509 BMW represented Strategic Air Command at the United Kingdom Air Tactical Fighter Meet (TFM) — 1986, a NATO exercise hosted by the Royal Air Force at RAF Waddington. Operation Tea Party involved two phases: an initial deployment to and operations from RAF Lakenheath from 15-30 July and a subsequent deployment to RAF Waddington for the TFM from 30 July on 10 August. The wing sent 86 personnel, five FB-111 aircraft and the necessary maintenance equipment for this operation. The six primary aircrew were selected from the 393d and 715th Bomb Squadrons. Experience level included a mix of young and old heads which proved to be a winning team.

On the morning of 19 July at 0258, the first tanker of a three ship cell launched with the others following at one minute intervals. At precisely 0302 the five FB-111 aircraft launched using MITO procedures into the dark New England morning. South of Bangor, Maine, the three tankers flown by 509 AREFS aircrews rendezvoused with the five FB-111s and flew east into the rising sun. The first air refueling went as scheduled over Newfoundland with one tanker returning to Pease. The crews completed the final refueling an hour and a half later south of Greenland. This marked the halfway point of the six and one-half hour mission. Approaching the Scottish coastline, U.K. military air traffic controllers greeted the deployers and cleared the FB-111s direct to RAF Lakenheath. The tankers recovered to RAF Mildenhall. On short final for landing at RAF Lakenheath, crews were surprised to see a large group of "runway watchers" awaiting their arrival. In the U.K., U.S. flyers found this to be commonplace and felt good knowing they were not alone in their enthusiasm for flying.

RAF Lakenheath, home of the 48 TFW "Statue of Liberty Wing," is situated northeast of London in East Anglia — old Eighth Air Force bomber country. This marked the first FB-111 operation in the United Kingdom. The 493d TFS hosted the Pease unit and provided great assistance in preparing for United Kingdom flying. The first in-country mission consisted of a three ship familiarization mission with a 493d aircrew flying lead in a F-111F. The two hour mission included low level over the Scottish countryside at the minimum altitude of 250 feet, conventional bombing range procedures, and "bootlegged" air refuelings, all accomplished while avoiding "purple airspace" (i.e., Royal Family flights) and numer-

# OPERATION TEA PARTY . . .

ous restricted areas. For the FB-111 crews flying in this "uncontrolled airspace," the environment proved a welcome relief after years of stringent rules and procedures during stateside missions. On the ground, 493d and 509th crews exchanged valuable insights into each other's primary missions. Pease crews learned much about conventional weapons employment and tactics. SAC's expertise in radar bombing proved of particular interest to the F model crews due to their limited training requirements in this area.

On July 30, the 509 BMW moved to RAF Waddington and the Tactical Fighter Meet. The weather at Waddington was not the best for the 100 arriving TFM aircraft. Four hundred foot ceilings and driving rain kept the approach controllers busy with talk-downs (i.e., PAR approaches) for six hours, averaging an approach every four minutes.

The first two days at RAF Waddington involved meeting the other TFM participants and flying familiarization missions to the local ranges. Participants in the TFM came from the NATO Air Forces and stateside USAF wings. Belgium, Canada, Denmark, France, Federal Republic of Germany, the Netherlands, the United Kingdom, and the United States aircrews from Langley AFB, Nellis AFB and Pease AFB made up the multinational force. Fighter aircraft included the Tornado, Mirage, Jaguar, F-4, F-5, F-15, F-16, CF-18, EF-111, FB-111, Lightning, Draken, and the NATO E-3. For the local "runway watchers" this great collection of fighter aircraft provided a real treat.

Prior to each day's mission, Orange and Blue Forces received a weather briefing, restricted area brief, and a ROE (rules of engagement) discussion. Once Orange Counterair Forces departed, the Blue Force was briefed on the intelligence scenario, ground and air threats, targets, and TOT (time over target) with ingress and egress routing. The Blue Commander then summarized his plan of attack. Following the brief, crews mission-planned assisted by RAF flight liaison officers. Each day's missions flew a different random low level route which required attacking target complexes from new axes. The 509th staff planners developed unique low level mission folders including radar predictions within three hours of each flight — definitely not the standard stateside STR missions. These procedures proved accurate and invaluable aids to the crews.

**RAF officers brief the daily attack mission during UKAIR Tactical Fighter Meet. Aircrews from eight NATO nations participated in the five day event at RAF Waddington.**

**FB-111 enroute to the target. Note the AIM-9L mounted under the right wing. Pease crews claimed several "kills" during the post low level egress.**

Unlike the sterilized Red Flag and Maple Flag missions, TFM crews conducted operations over the entire United Kingdom countryside and competed with normal civil air traffic on a see and avoid basis — a very real need for heads up flying to ensure safe operations. After a thorough formation brief, it was out to the ramp to preflight. Taxi and takeoff timing was critical due to the large number of aircraft and the single runway operation at Waddington. Seven minutes after taxiing, four FB-111s were airborne and on the way leading the Blue Force package. Using minimum risk corridors and terrain masking, Blue Force ingressed the target area avoiding both weather and simulated surface threats. FB-111s used their supersonic capability on overwater legs.

Approaching the Spade Adam Bombing Complex, aircraft encountered realistic threats including explosive AAA and Smokey SAM simulators. Besides countering these ground threats, Blue Force had to avoid the Orange Air Forces while acquiring the target on radar and visually. Targets included heavily defended runways, GCI sites and numerous SAM and AAA sites. Following release of MK-106 practice bombs simulating MK-82s and CBUs, Blue Forces egressed at high speed towards the "FEBA." Coming home, the Blue Force still evaded Orange; however, because the FB-111s carried AIM-9Ls, these were not one-sided encounters. In fact, the FB-111 aircrews successfully engaged Orange Force Tornadoes, F-16s, and F-4s attacking their flights.

TFM aircrews accomplished VFR recoveries to a congested traffic patterns of up to 70 aircraft. During the five days of the TFM, aircrews accomplished all recoveries without closing the runway, a true indication of their professionalism. Following maintenance debrief, crews recounted the mission to RAF flight liaison officers and assessed mission success.

At 1645, all TFM participants gathered for the daily mass debrief. Crews evaluated their success against the targets aided by computer enhanced imagery and watched video tapes of terminal threat reactions. Lessons learned were discussed between teams and everyone left the briefing with a better insight into capabilities and limitations in a combat situation as part of a multinational force.

For the aircrews, operations and maintenance personnel returning to the states, Pease was a welcome sight after a demanding three and one-half week schedule. The aircrews came away with a better understanding of flying in the European conventional theater. They received realistic training attacking targets heavily defended by both ground and air threats. The crews also learned to fly in large, multinational packages rather than the standard single ship ingress. They saw the value of mutual self-defense in combat situations. Finally, meeting the NATO allies, exchanging ideas, talking about "the threat" and understanding how a European conventional war might be fought fulfilled the crew's goal of successfully participating in and representing SAC at the United Kingdom Tactical Fighter Meet — 1986.

**FB-111s rejoin over Scotland's Loch Ness after low level missions.**

**Lt Gen Kenneth Peek, Commander, Eighth Air Force, leads FB-111s to a KC-135R's wing during the redeployment to Pease AFB.**

# PROFESSIONAL PERFORMERS

## Flying Crew

Recently, an FB-111A flown by Capts Douglas D. Martin and Robert J. Medvetz of the 380 BMW, Plattsburgh AFB, experienced a serious and very rare inflight emergency. While returning from Grand Forks AFB to Plattsburgh AFB, at approximately 0100, the aircraft experienced a double generator failure forcing a landing on emergency generator power in extremely adverse weather conditions.

The emergency generator provides no navigation capability, causes the aircraft gyros to go into a fast erect cycle, making them useless until the erect cycle is complete, and leaves only a few standby flight instruments lighted by a single dim floodlight. The emergency generator is powered by the aircraft hydraulic system, which makes it susceptible to power interruption if the hydraulic drain from the flight controls is too great. Capt Martin was able to maintain aircraft control by use of the turn and slip indicator, until the aircraft finally broke out of the weather and the gyros could finish the erection to straight and level flight.

The only suitable landing base was K.I. Sawyer, which was 240 nm behind the aircraft. The weather at K.I. was 500 broken, 800 overcast, with 2 miles visibility in blowing snow. An enroute descent was taken into K. I. with a PAR to the non-optimum runway. The radar navigator, Capt Medvetz, continued to provide altitude calls and vertical velocity information from the time the second generator failed until the aircraft was safely on the ground. The runway condition reading was LSR 10 (loose snow on runway), so the departure end cable was requested to be installed in the event that the aircraft would not stop on the runway. In this event the aircraft tailhook could be used if needed. During the PAR, the crew acquired the runway environment visually at about 500 feet above the ground and an uneventful full stop landing was accomplished without barrier engagement. Investigation by maintenance personnel revealed that the drive shafts located in the constant speed drives of both generators had sheared. The extremely professional handling of this serious emergency by Capts Martin and Medvetz resulted in the safe recovery of a valuable aircraft and crew.

## Aircraft Maintenance

TSgt Stephen L. Maes, 17 RW, RAF Alconbury, is SAC's Maintenance Airman of the Month. While serving as an aircraft corrosion control manager and technician, TSgt Maes' management track record is unparalleled: 100% error free ratings from local and higher headquarters inspections. Recently a new advanced synthetic aperture radar system (ASARS) nose on a TR-1 was severely damaged. After receiving special permission from the manufacturer to repair the nose, TSgt Maes along with the structural repair shop began their long and tedious job of repairing the critical fiberglass honeycomb structure. Over two hundred thousand dollars were saved in lieu of ordering a replacement nose.

## Missile Crew

The 44 SMW Split Crew R161/E180, consisting of Capt Ocie E. Hardy, MCCC, and 2Lt Kenneth D. Williams, DMCCC, is SAC's Missile Crew of the Month.

While on alert recently, a helicopter crashed in their flight area. The crew immediately notified the wing command post to monitor the proper VHF frequency and then proceeded to perform time critical requirements. They verified that prompt action was also undertaken to transport critically injured personnel to the nearest medical facility.

After verifying that the fire was extinguished, limiting fire damage, Split Crew R161/E180 restricted initial use of VHF communications to minimize the potential of a radio induced explosion. They also coordinated with wing security control and the initial on-scene response team to ensure that security was provided for the crash area.

These crew member's professional knowledge, prompt actions and concern for personnel safety exemplify a genuine concern for safety.

**"Proficiency and safety go hand in hand. Each is dependent upon the other in accomplishing our mission."**

**—Gen Curtis E. LeMay, USAF, (ret)**

## Munitions Maintenance

SSgt Jeffrey L. Grogg, 509 BMW, Pease AFB, is SAC's Munitions Airman of the Month. SSgt Grogg manages a four member team in the maintenance of FB-111A short range attack missile (SRAM) and weapons release systems as an aircraft integrated systems checkout team chief. SSgt Grogg's technical excellence has resulted in seven error-free QA evaluations, including an "outstanding" rating on an aircraft monitor, control, and release test. During this year's MSET visit, his thorough inspection practices resulted in all on-equipment being rated error-free and receiving an "excellent" rating. SSgt Grogg's meticulous training of his subordinates has resulted in highly knowledgeable and motivated technicians. Every member of his team has passed every local and higher headquarters evaluation given them with satisfactory or higher ratings.

# Crew Procedures — Practice to Win

Lt John Morris
351 SMW/DOT, Whiteman AFB

Are you a winner? Is your crew a winner? Consider this dictionary definition: "A winner is one who is successful, especially through praise-worthy ability and hard work." Does this definition fit you and your crew? If it doesn't, or if it does but you aspire to even greater success, then consider the potential benefits of working harder on your crew procedures. Effective crew procedures can improve safety, earn you a highly qualified rating, and help move you to the select jobs in the wing. Most important, they will improve your performance on alert and your ability to fulfill SAC's deterrent mission. In short, good crew procedures can make you and your crew a winner.

Practice is essential for success in any activity, and it's particularly important to success in group or team activities. Can you imagine a successful team in any sport that doesn't practice its plays, teamwork, and coordination? Does an orchestra or band play well without rehearsal? Groups practice to ensure that each individual's actions are performed in harmony with the actions of the group. Team success depends upon practiced coordination.

Team practice is also a critical factor in a combat crew's success. We all know that crew members must be prepared to handle a wide variety of equipment malfunctions, security situations and emergencies. When a crew is faced with one or more of these situations, they must apply their knowledge through physical action — decisively and accurately. There is often little room for error in the tasks they perform. A crew must be able to **react** — to respond rapidly when needed and quickly verify that proper actions are being accomplished. Well practiced crew procedures ensure correct performance when the pressure is on. Don't wait for an actual emergency to test your crew coordination and teamwork.

Good crew procedures don't just happen — it takes hard work to develop them. As soon as your crew is formed, begin by reviewing checklists and discussing required actions. An important part of preparation and training is self-study of the checklists and T.O. procedures — however, solid preparation requires much more than just self-study. It also requires practice — particularly in the areas of reaction, communication and checklist discipline.

**"A winner is one who is successful, especially through praise-worthy ability and hard work."**

Think about how your crew reacts — the actual physical actions. Does your crew discuss procedures on alert and determine exactly who will perform each checklist step? Plan the action of each crew member to achieve the most effective result. At each step ask, "What is the best way to react?" Once you decide who will accomplish each action, practice — perform dry runs of the procedures. With hard work and sufficient practice, each crew member will know exactly what to expect from the other crew member, and reaction time will be diminished.

How about your communication while accomplishing demand-response checklists, which are written so that each crew member can verify that the other crew member's decision or action is appropriate. Good crew communication confirms that the actions being performed are correct and keeps the crew working together at the same pace. Your verbal responses should have meaning and serve to confirm actions. For example, a crew member should respond with the checklist required response such as "flight four" or "launcher three" rather than "check" or "I agree." This kind of team work can keep errors from happening.

Your work on crew procedures can improve checklist discipline as well. As you practice processing checklists together, you will become very familiar with the steps, notes, cautions and lead-ins. Verbalize step numbers along with the required actions, mark completed steps with a grease pencil and plan your "hold" and "transitions points" in the checklists. Practice and drill will generate good checklist discipline, and the techniques will soon become second nature.

Repeated practice and work on your crew procedure can have other benefits as well. Discussion of crew procedures will generate questions. The search for answers leads to research, self-study and more learning. You begin to anticipate problems and plan how to react — and increased familiarity with the checklists allows you to react decisively and confidently when an actual emergency arises.

Simulator or MPT training sessions provide the opportunity to test your techniques and see if they are effective, however, the simulator shouldn't be the place to begin to develop your crew procedures. These training sessions should be used to check and refine already developed techniques under pressure conditions.

One last item about the procedures you practice with your crew. Individualism is a great American tradition. If your crew were the only crew in the wing, then your crew could decide the best way to accomplish each action. However, since you are not alone, it's essential to follow the wing's standardized or recommended methods to accomplish tasks or procedures. Imagine the confusion factor when a substitute crew member performs each procedure differently from other crew members have come to expect. Standardized crew procedures ensure that a substitute crew member knows what to expect from the other crew member and vice versa.

Remember our definition of a winner? With hard work, self-study, and practice you can develop crew procedures and achieve even greater success. You can consistently achieve those highly qualified ratings. It's up to you.

# SAC SAFETY SCREEN

**24 SRS, Eielson Crew S-01:** IP Maj J. B. Wishall, CP Capt Daniel Parsons, CP Capt Thomas Lasko, N Capt Anthony Rocco, N Capt Timothy Scott

**24 SRS, Eielson Crew S-11:** ITC Capt Dale Adams, R1 1Lt David Flynn, R2 Capt Richard Freitas, R3 1Lt James Dean, R4 1Lt Wade Watts, ET SSgt Daniel Derner, PT SSgt Edmond Desjardins

**28 AREFS, Ellsworth Crew R-107:** P Capt Dennis R Trotts, CP Capt Michael T Schilz, N 2Lt Gregory O Teal, IBO SSgt Joseph G Gedman

**4 ACCS, Ellsworth Crew R-108P:** P Capt William M Brantley, CP 1Lt Thomas S Thrower, N 1Lt Gary A Sjurset, BO SSgt Michael R Eaton, CCO Capt Howard G Brown III, RO1 CMSgt Christopher McCormack Jr, RO2 TSgt Philip A Jones, AFSAT MSgt Robert E Moore, 616 MSgt Clement F Ryan, 60 Sgt Timothy J McLaughlin, Ops Controller Maj John L Gardner, EA NCO TSgt Jerry A Hughes, FS NCO TSgt William E Havens, Ops Planner Capt James J McGrail Jr, Ops Planner Capt Collins G Shackelford Jr, Logistics Officer Capt Michael W Lyons, Logistics NCO MSgt Richard E Lewis, Intel Officer Capt Harold M Broth, Intel Officer Capt Steven J Reandeau, MCC-A Capt Thomas L Phelps, DMCC-A Capt James E Long Jr

**9 AREFS, March Crew D-041:** AC Capt Nedwyn A Friedman, CP 1Lt Ira W Pence, FE TSgt Michael M Jackson, BO MSgt Eugene J Cowles

**9 AREFS, March Crew C-031:** AC Maj Larry G Hastings, CP 1Lt Michael L Povinelli, FE SMSgt Charles O Damron, BO TSgt Delma J Coggin

**22 AREFS, March Crew E-110:** P Maj Ronald J Wartburg, CP 1Lt Inocencio Orta, N Capt Mitchell D Valder, IBO MSgt Lee R Meriwether

**22 AREFS, March Crew E-132:** P Capt Gary L Bush, CP 1Lt Keith W Sharp, N 1Lt Terri J Ducker, IBO SSgt William E Wright

**917 AREFS, Dyess Crew R-133:** P Maj Roger A Bailey, CP 1Lt Bobbie L Wonderly-Fulton, N 1Lt Rebecca L Farmer, BO TSgt Thomas J Hines

**917 AREFS, Dyess Crew R-124:** P Maj Philip W Burke, CP 1Lt Jeffery S Giles, N 1Lt Daniel R Villegas, BO A1C James H Hill

**338 SBTS, Dyess Crew Z-65:** P Maj Edward P Schoeck, Offensive Systems Officer Maj Alan W Debban, Defensive Systems Officer Maj James C Slavicek

**1 SRS, Beale Crew R-06:** P Maj William R Dyckman, RSO Maj Thomas E Bergam

**99 SRS, Beale Crew:** P Capt Jonathan D George

**349 AREFS, Beale Crew E-113:** P Capt Robert F Britton, CP Lt Stephen A Knoblock, N Capt Gregory M Summers, BO Amn Michael S Bradley

**350 AREFS, Beale Crew R-164:** P Capt Dave Suwinski, CP Lt Mark Leingang, N Capt Leroy Both, BO A1C Greg Wilcoxson

**350 AREFS, Beale Crew R-194:** P Capt Kathy Odegard, CP Capt Chuck O'Donnell, N Capt Phil Campbell, BO SSgt Ken Horman

**17 RW, RAF Alconbury Crew E-24:** Maj Jim Burger

**17 RW, RAF Alconbury Crew E-23:** Maj Bob Dunn

The SAC Safety Screen is an honor roll of SAC's most professional crews. To gain listing on the Screen, crew members must be nominated by their unit commanders and meet high selection criteria of experience in their aircraft or missile system *IAW AFR 127-2/SS1.*

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FLARE

"The old adage, 'A dollar saved is a dollar made,' finds no more honest application than in the business of flying safety. An airplane and crew saved is an airplane and crew made. Make the flying safety business your business."

—Gen Curtis E. LeMay, USAF, (ret)